



Statistical Modeling of the Beginning and End of Relief Time by Red Crescent in Earthquakes between “1395-1396”: a Survival Study

Batoul Khoundabi ^{1*}, Ahmad Soltani ², Navvab Shamspour ³

^{1*} Ph.D in Biostatistics, Assistant Professor, Iran Helal Institute of Applied-Science and Technology, Research Center for Health Management in Mass Gathering, Red Crescent Society of the Islamic Republic of Iran, I.R Iran.

(baharkhoundabi@gmail.com)

² MD, Ph.D in Disaster & Emergencies Health, Associated at Health in Emergency & Disaster Research Center Tehran, Research Center for Emergency and Disaster Resilience, Red Crescent Society of the Islamic Republic of Iran, I.R Iran.

³ PhD Student in Educational Management, Head of General Education Department, Red Crescent Society of the Islamic Republic of Iran, I.R Iran.

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ABSTRACT

Earthquakes are considered a high catastrophic and unpredictable natural catastrophe and reports on structural collapses reveal a persistent vulnerability and emphasize the importance of better integration of collective response to such disasters. To alleviate the collapses and victims, there is a need to standardize all phases of USAR operations (deployment, search, locate, extrication, on-site medical support) and increase the speed of rescue efforts. Investigating the effective factors on the duration between the start to the end of the relief effort, will be useful to improve crisis management for reducing wasting time and optimizing the management of future events. In this paper, it has been tried to estimate the duration between the beginning and the end of the earthquake relief by some explanatory variables. It is used Survival modeling like Cox regression or Kaplan–Meier to assessment and comparison of the effect of the explanatory variables such as: earthquake magnitude power, the amount of services provided by the Red Crescent society, level of health care and etc. For this research, the relief and rescue organization database has been used. The median of time between start to end of relief operation is 4.6 hours. Cox model applying showed that level of use of air and logistics services and the number of rescuer teams leads to shorter time significantly ($p < 0.05$). Log Rank test didn't distinguish difference between time median in two years 1396 and 1395 ($p = 0.423$).

Keywords:

Relief Time, Survival Analysis, Earthquake, Red Crescent Society